



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/868,797	09/25/2001	Matthias Weiss	A34394 PCT USA	6461
21003	7590	11/05/2004	EXAMINER	
BAKER & BOTTS 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			BUEHL, BRETT J	
			ART UNIT	PAPER NUMBER
			2183	

DATE MAILED: 11/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/868,797		WEISS, MATTHIAS	
	Examiner		Art Unit	
	Brett J Buehl		2183	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/21/01, 8/13/01, 8/24/01, 10/9/01.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-20 is/are rejected.
- 7) ☒ Claim(s) 13-16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>8/24/01, 10/9/01</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 11-20 have been examined.

Papers Submitted

2. It is hereby acknowledged that the following papers have been received and placed on record in the file: Application as received on 6/21/01, Foreign Priority Papers as received on 8/13/01, IDS as received on 8/24/01, and IDS as received on 10/9/01.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
4. The specification is objected to because the following sections of the specification are absent: Background of the Invention, Brief Summary of the Invention, Brief Description of the Drawings, and Detailed Description of the Invention. Please see below.

Content of Specification

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic

Art Unit: 2183

documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

Or alternatively, Reference to a "Microfiche Appendix": See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.

- (e) **Background of the Invention**: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
- (1) **Field of the Invention**: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
 - (2) **Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98**: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (f) **Brief Summary of the Invention**: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (g) **Brief Description of the Several Views of the Drawing(s)**: See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (h) **Detailed Description of the Invention**: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not

necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

- (i) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (j) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (k) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

Drawings

5. The drawings are objected to because Figure 2 contains an unknown term, "Zeile", for reference numeral 13. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the

Art Unit: 2183

remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the program word buffer as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified

Art Unit: 2183

and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

7. Claims 13-16 is objected to because of the following informalities:
 - a. Claim 13 recites the limitation “wherein the newly generated secondary instruction word is appended to the second group”. The newly generated secondary instruction is not appended to the group, instead it replaces an existing instruction in the group.
 - b. Claim 14 recites the limitation “wherein the newly generated secondary instruction word is not stored”. This limitation contradicts the independent claim from which it depends, claim 11, in that claim 11 recites the limitation “storing each instruction in a second group of secondary instruction words corresponding in number to the first group is provided with a second characteristic.” The secondary instruction cannot be simultaneously stored and not stored.
 - c. Claims 15 and 16 recite the limitation “The method in accordance with 11”. This limitation should be amended to read as “The method in accordance with claim 11”.
 - d. Claim 16 is difficult to decipher. The claim should be revised to read “The method in accordance with claim 11, wherein the second characteristic consists of an address, corresponding to the first characteristic, of the preceding secondary instruction word in a memory used for storage of the second group.”

Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 11 –20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Claim 20 recites the limitation “A processor arrangement for carrying out the method of claim 1” in line 1. There is insufficient antecedent basis for this limitation in the claim since claim 1 has been cancelled. For the purposes of examination, this limitation will be interpreted to depend from claim 11.

11. Claim 11 recites the limitation “A method for controlling functional units in a processor” in line 1. However, the method steps in claim 11 are not clearly defined since a result of a configuration is not a method step. Please revise the claim to more clearly define the metes and bounds of the invention. Claims 12-20 are rejected as depending from claim 11.

12. Claim 12 recites the limitation “the primary word in question” in line 3. There is insufficient antecedent basis for this limitation in the claim, since it is unclear as to what “the primary word in question” refers. Please see similar for claim 15.

13. Claim 13 recites the limitation “the former” in line 2. There is insufficient antecedent basis for this limitation in the claim, since it is unclear as to what “the former” refers.

14. Claim 13 recites the limitation “its generation” in line 3. There is insufficient antecedent basis for this limitation in the claim, since it is unclear as to what “its” refers.

Art Unit: 2183

15. Claim 17 recites the limitation “the number of word parts to be differentiated that occurs most frequently within the configuration”. It is unclear to the examiner what the limitation implies about the most frequently occurring word parts. The independent claim from which this claim depends indicates that only the differences between a previous program word and the current program word are encoded. This does not mean that the most frequently occurring parts are represented. See similar for claims 18 and 19. Since the specification does not clarify the problem, claims 17-19 will not be further treated on their merits.

16. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

17. Claims 17-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification states that “the program word consists of a number of instruction word parts that corresponds to the number of instruction word parts to be differentiated which occurs most frequently within the configuration”. It is unclear in the specification how the most frequently occurring word parts are involved in the compression method. Compressing the differences between a previous program word and the current program word does not imply encoding the most frequently occurring word parts. It is unknown if the most frequently occurring word parts are used in the compression or if the compressed program words are then compressed a second time using the most frequently occurring word parts. Thus, claims 17-19 are not enabling to allow one of

Art Unit: 2183

ordinary skill in the art to make or use the claimed invention without excessive and undue experimentation.

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 11-16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art (Description of the Invention, Pages 2 and 3), and further in view of Smith et al., "Parallel algorithms for data compression".

20. As for claim 11, the applicant's admitted prior art discloses the invention substantially as claimed, but has not explicitly taught a group of previous program words for comparison to the current program word.

21. However, Smith et al. teaches a data compression scheme that utilizes a dictionary, or window, of previous data to compress the current data by using pointers into the dictionary to replace the current data (Section 1). One of ordinary skill in the art of data compression would have recognized the advantage of having a larger window of previous data, which translates to a group of previous program words in this case, to increase the probability of encountering similar data. Having a larger window, or group, of data allows for the best or longest match to be found, requiring less data in the compressed version. Since finding the best possible compression is the ultimate goal of data compression, it would have been obvious to one of ordinary skill in the art

Art Unit: 2183

at the time of the invention to modify the method of the applicant's admitted prior art to include a group, or window, of previously seen program words to increase the probability of encountering a similar program word, thereby reducing the amount of information needed to store the compressed version of the program word.

22. As for claim 12, the applicant's admitted prior art, in view of Smith et al. (Section 5), discloses the invention substantially as claimed. Sliding windows of previous data were well known in the art at the time of the invention, thus one of ordinary skill in the art would have recognized the advantage of using a sliding window of previous program words would provide a simple table update scheme that requires less logic than more complicated update schemes. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of the applicant's admitted prior art to utilize a sliding window of previously encountered program words, thereby reducing the overhead of the table update logic.

23. As for claim 13, the applicant's admitted prior art, in view of Smith et al., discloses the invention substantially as claimed, but has not explicitly taught the replacement of the program word used to encode the current program word with the current program word.

24. However, the Most Recently Used (MRU) cache update scheme was well known in the art at the time of the invention, which is applicable to table updates in general, and was known to be simpler than other update schemes. One of ordinary skill in the art would have recognized that replacing the most recently used program word contained in the group of previous program words would guarantee that the group is not filled with only program words of one category. This would reduce the redundancy in the table ensuring a better mean compression ratio.

Art Unit: 2183

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of claim 11 to use an update scheme that replaces the previous program word with the current program word in order to reduce the redundancy in the table, thereby improving compression.

25. As for claim 15, see claim 11.

26. As for claim 16, see claim 11.

27. As for claim 20, the applicant's admitted prior art, in view of Smith et al., has taught the invention substantially as claimed, but has not explicitly taught an instruction buffer for storing generated instructions and having line-by-line access.

28. However, it is inherent in the method as stated in the arguments for claim 11 that the generated instructions be placed in some type of buffer since the generated instructions are used to generate future program words. This memory, by nature, would be line-by-line addressable (i.e. RAM, ROM).

29. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art (Description of Invention), in view of Smith et al., "Parallel algorithms for data compression", and further in view of Bealkowski et al., U.S. Patent No. 5,636,352.

30. As for claim 14, the applicant's admitted prior art, in view of Smith et al., discloses the invention substantially as claimed, but has not explicitly taught the group of program words not being updated.

31. However, Bealkowski et al. has taught an instruction compression scheme that utilizes a synonym table that is not updated for compressing/decompressing program instructions (col. 4, lines 4-16). One of ordinary skill in the art of data compression would have recognized that

Art Unit: 2183

utilizing a table of program words that does not require updating allows for hand-selected program words that are known to yield a higher compression ratio for a given program and eliminates the overhead of the update logic. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of that applicant's admitted prior art to utilize a program word table that is not updated to allow for hand-selecting of program words that are known to yield a higher compression ratio and to eliminate the overhead of the update logic.

Conclusion

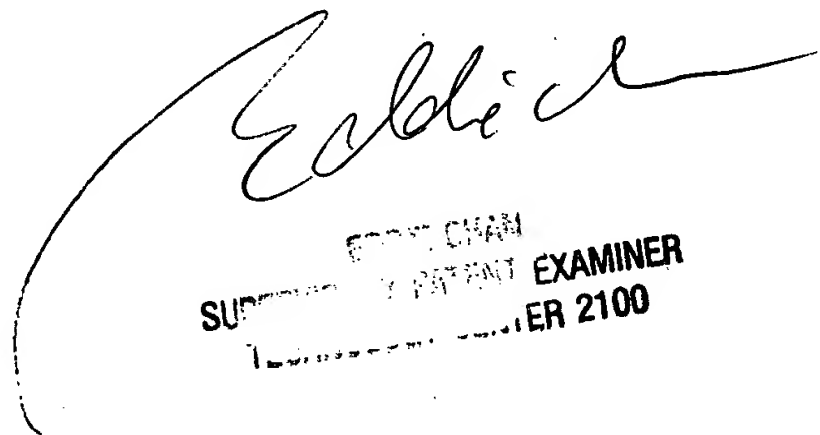
32. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is reminded that in amending in response to a rejection of claims, the patentable novelty must be clearly shown in view of the state of art disclosed by the references cited and the objections made. Applicant must show how the amendments avoid such references and objections. See 37 CFR 1.111(c).

33. Inquiries concerning this communication or earlier communications from the examiner should be directed to Brett J. Buehl who can be reached at (571) 272-4161 or <brett.buehl@uspto.gov>. The examiner can normally be reached between the hours 8:00am – 5:30pm (EST), Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan, can be reached at (571) 272-4162. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Art Unit: 2183

34. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



EDDIE CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

EDDIE CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100